

Listing of Claims:

Claims 1-8 (Canceled).

9. (Currently Amended) A device for spread spectrum communication comprising:

a toggle detecting unit which detects a candidate of a toggle point existing in a carrier of a received signal by
5 ~~correlating~~ calculating correlation between the carrier of the received signal and a pre-held expected signal and then searching for positions of phase changing points expected to be in the received signal but whose positions are currently unknown, wherein the received signal is a modulated waveform of the
10 carrier wave itself, and wherein the pre-held expected signal is a signal including a waveform of the toggle point which is expected to be in the carrier of the received signal and is a signal having a length corresponding to 2 chip-times of a spread code or is a signal having a shorter length than 2 chip-times of
15 the spread code, the 2 chip-times of the spread code being that portion of the expected signal extending from both sides of the toggle point a distance of 1 chip-time; and

a demodulating unit which demodulates the received signal by multiplying the received signal by the spread code which is

20 shifted according to a shift amount calculated based on the
detected candidate.

10. (Previously Presented) The device as claimed in claim 9,
wherein:

said toggle detecting unit outputs a toggle signal as a
result of detecting the candidate of the toggle point;

5 a candidate of the shift amount which is to be provided to
the spread code is calculated based on cross-correlation of the
toggle signal and an absolute value of a differentiated value of
the spread code;

said demodulating unit demodulates the received signal by
10 shifting the spread code with respect to each candidate of the
shift amount, and

effectiveness of a carrier spectrum of the received signal
demodulated in the demodulating unit is inspected.

11. (Previously Presented) The device as claimed in
claim 10, wherein the candidate of the shift amount which is to
be provided to the spread code is calculated by correlating
between a Fourier transformed value of the toggle signal and a
5 Fourier transformed value of the absolute value of the
differentiated value of the spread code.

12. (Currently Amended) A high-speed synchronization establishing method for spread spectrum communication, said method comprising:

detecting a candidate of a toggle point existing in a carrier of a received signal, the received signal being a modulated waveform of the carrier wave itself; thereafter

calculating a shift amount based on the detected candidate; and thereafter

demodulating the received signal by multiplying the received signal by a spread code shifted according to the calculated shift amount;

wherein the candidate of the toggle point is detected by ~~correlating~~ calculating correlation between an expected signal and the carrier of the received signal and then searching for positions of phase changing points expected to be in the received signal but whose positions are currently unknown; and

wherein the expected signal is prepared previously and includes a waveform of the toggle point expected to be in the carrier of the received signal and has a length corresponding to 2 chip-times of the spread code or has a shorter length than 2 chip-times of the spread code, the 2 chip-times of the spread code being that portion of the expected signal extending from both sides of the toggle point a distance of 1 chip-time.

13. (Previously Presented) The high-speed synchronization establishing method for spread spectrum communication as claimed in claim 12, wherein:

5 a toggle signal is outputted as a result of detecting the candidate of the toggle point;

a candidate of the shift amount which is to be provided to the spread code is calculated based on cross-correlation of the toggle signal and an absolute value of a differentiated value of the spread code;

10 the received signal is demodulated with respect to each candidate of the shift amount; and

effectiveness of a carrier spectrum of the demodulated received signal is inspected.

14. (Previously Presented) The high-speed synchronization establishing method for spread spectrum communication as claimed in claim 13, wherein a Fourier transformed value of the toggle signal and a Fourier transformed value of the absolute value of the differentiated value of the spread code are correlated when
5 the candidate of the shift amount which is to be provided to the spread code is calculated.

15. (Previously Presented) The device as claimed in claim 9, wherein the pre-held expected signal is a signal having a length corresponding to 2 chip-times of the spread code.

16. (Previously Presented) The device as claimed in claim 9, wherein the pre-held expected signal is a signal having a shorter length than 2 chip-times of the spread code.

17. (Previously Presented) The high-speed synchronization establishing method for spread spectrum communication as claimed in claim 12, wherein the expected signal has a length corresponding to 2 chip-times of the spread code.

18. (Previously Presented) The high-speed synchronization establishing method for spread spectrum communication as claimed in claim 12, wherein the expected signal has a shorter length than 2 chip-times of the spread code.